Customer No.: 31561
Application No.: 10/063,575
Docket NO.: 8318-US-PA

Amendment

FOR THE CLAIMS

Claim 1-12 (Currently cancelled).

Claim 13. (Original) A chip structure having bumps thereon, comprising:

a silicon chip having an active surface with a passivation layer and a plurality of bonding pads thereon, wherein the passivation layer exposes the bonding pads and material forming the bonding pads contains copper;

an adhesion layer over the bonding pads, wherein material forming the adhesion layer is titanium-tungsten alloy;

a barrier layer over the adhesion layer, wherein material forming the barrier layer is nickel-vanadium alloy;

a wettable layer over the barrier layer, wherein material forming the wettable layer includes copper; and

a plurality of solder blocks over the wettable layer.

Claim 14. (Original) The chip structure of claim 13, wherein the adhesion layer has a thickness between about 800Å to 2000Å.

A1

Claim 15. (Original) The chip structure of claim 13, wherein the barrier layer has a thickness between about 1500Å to 3500Å.

Claim 16. (Original) The chip structure of claim 13, wherein the wettable layer has a thickness between about 2000Å to 9000Å.

Claim 17. (Original) A chip structure having bumps thereon, comprising:

a silicon chip having an active surface with a passivation layer and a plurality of bonding pads thereon, wherein the passivation layer exposes the bonding pads and material forming the bonding pads contains copper;

an adhesion layer over the bonding pads, wherein material forming the adhesion layer is chromium;

a barrier layer over the adhesion layer, wherein material forming the barrier layer is nickel-vanadium alloy;

a wettable layer over the barrier layer, wherein material forming the wettable layer includes copper; and

a plurality of solder blocks over the wettable layer.

Claim 18. (Original) The chip structure of claim 17, wherein the adhesion layer has a thickness between about 800Å to 2000Å.

Claim 19. (Original) The chip structure of claim 17, wherein the barrier layer has a thickness between about 1500Å to 3500Å.

Claim 20. (Original) The chip structure of claim 17, wherein the wettable layer has a thickness between about 2000Å to 9000Å.

Claim 21. (Original) A chip structure having bumps thereon, comprising:

a silicon chip having an active surface with a passivation layer and a plurality of bonding pads thereon, wherein the passivation layer exposes the bonding pads and material forming the bonding pads contains copper;

an adhesion layer over the bonding pads, wherein material forming the adhesion layer is titanium-tungsten alloy;

a barrier layer over the adhesion layer;

a wettable layer over the barrier layer; and

a plurality of solder blocks over the wettable layer.

Claim 22. (Original) The chip structure of claim 21, wherein material constituting the barrier layer is nickel-vanadium alloy.

Claim 23. (Currently amended) The chip structure of claim 21, wherein material constituting the wettable layer is selected from a group consisting of copper, palladium and gold~~, and that the solder block material and the wettable layer material may diffuse into each other~~.

Claim 24. (Original) The chip structure of claim 21, wherein material forming the passivation layer includes polyimide.

Claim 25. (Original) The chip structure of claim 21, wherein the adhesion layer has a thickness between about 800Å to 2000Å.

Claim 26. (Original) The chip structure of claim 21, wherein the barrier layer has a thickness between about 1500Å to 3500Å.

Claim 27. (Original) The chip structure of claim 21, wherein the wettable layer has a thickness between about 2000Å to 9000Å.

Claim 28. (Original) A chip structure having bumps thereon, comprising:

a silicon chip having an active surface with a passivation layer and a plurality of bonding pads thereon, wherein the passivation layer exposes the bonding pads and material forming the bonding pads contains copper;

an adhesion layer over the bonding pads, wherein material forming the adhesion layer is chromium;

a barrier layer over the adhesion layer;

a wettable layer over the barrier layer; and

a plurality of solder blocks over the wettable layer.

Claim 29. (Original) The chip structure of claim 28, wherein material constituting the barrier layer is nickel-vanadium alloy.

Claim 30. (Currently amended) The chip structure of claim 28, wherein material constituting the wettable layer is selected from a group consisting of copper, palladium and gold~~, and that the solder block material and the wettable layer material may diffuse into each other~~.

Claim 31. (Original) The chip structure of claim 28, wherein material forming

the passivation layer includes polyimide.

Claim 32. (Original) The chip structure of claim 28, wherein the adhesion layer has a thickness between about 800Å to 2000Å.

Claim 33. (Original) The chip structure of claim 28, wherein the barrier layer has a thickness between about 1500Å to 3500Å.

Claim 34. (Original) The chip structure of claim 28, wherein the wettable layer has a thickness between about 2000Å to 9000Å.

Claims 35-36 (Currently cancelled).